

REMARKS

Upon entry of the present amendment, the title of the invention will have been amended. Reconsideration of each of the outstanding objections and rejections set forth in the above-mentioned Official Action is respectfully requested and is now believed to be appropriate and proper.

Initially, Applicants wish to respectfully thank the Examiner for acknowledging their Claim for Foreign Priority under 35 U.S.C. § 119 as well as for the Examiner's indication that all of the certified copies of the priority documents have been received in Applicants parent application No. 09/101,186. Applicants further respectfully thank the Examiner for his consideration of the references cited in the Information Disclosure Statements filed in the present application on August 28, 2002 as well as on July 30, 2001.

Applicants further thank the Examiner for considering and granting their request for deletion of one of the inventors of the present application. Applicants respectfully request that, as indicated in the outstanding Official Action, the Examiner forward the application to the Office of Initial Patent Examination for issuance of a Corrected Filing Receipt, correction of the file jacket and PTO PALM data to reflect the corrected inventorship.

In the outstanding Official Action, the Examiner objected to the title of the present invention and required a title that is more clearly indicative of the invention to which the claims are directed. By the present Response, Applicants have amended the title of the

P20687.A05

invention so as to be clearly indicative of the invention to which the claims are directed. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objection to the title of the invention.

Applicants have also corrected a minor typographic error concerning the filing date of the grandparent of the present application.

In the outstanding Official Action, the Examiner rejected claims 1-21 under the judicially created doctrine of obviousness type double patenting as being unpatentable over claims 1-21 of copending Application No. 09/843,877. The Examiner further rejected claims 1-21 under the judicially created doctrine of obviousness type double patenting as being unpatentable over claims 1-23 of copending Application No. 09/843,938 in view of OZAWA (U.S. Patent No. 5,826,226). The Examiner indicated that both of these obviousness type double patenting rejections are merely provisional rejections because the conflicting claims have not yet, in fact, been patented.

Applicants respectfully request reconsideration and withdrawal of each of these double patenting rejections as no longer being appropriate. In particular, Applicants have amended the claims in each of Application No. 09/843,877 and 09/843,938 so as no longer to be directed to subject matter that could be considered conflicting with the claims of the present application. In particular, the claims of U.S. Application No. 09/843,877 are now directed to a noise canceller while the claims of U.S. Patent Application No. 09/843,938 are

P20687.A05

directed to an LSP quantizer. Accordingly, the claims of the noise canceller and the LSP quantizer are clearly not conflicting with the claims of the present application which are directed to an excitation vector generator.

Accordingly, Applicants respectfully request reconsideration and withdrawal of each of the outstanding rejections of the claims pending in the present application under the judicially created doctrine of obviousness type double patenting.

In the outstanding Official Action, the Examiner rejected claims 1, 3-18, 20 and 21 under 35 U.S.C. § 102(e) as being anticipated by OZAWA (U.S. Patent No. 5,826,266). The Examiner further rejected claims 2 and 9 under 35 U.S.C. § 103(a) as being unpatentable over OZAWA in view of LAFLAMME et al. Applicants respectfully traverse each of the above-noted rejections and submit that they are inappropriate with respect to the combination of features recited in Applicants claims.

Applicants invention is directed to an excitation vector generator. In particular, the excitation vector generator of the present application includes a system that provides an input vector having at least one pulse, each pulse of the at least one pulse having a predetermined position and a predetermined polarity. A storage system stores at least one fixed waveform and a convolution system enables modification of the input vector with the at least one fixed waveform to transform a waveform of the input vector. The convoluting system outputs the transformed input vector as an excitation vector to improve the speech quality when a

P20687.A05

random code vector is decoded with the input vector. It is respectfully submitted that the combination of features recited in Applicants claim 1 (for example) are not taught, disclosed nor rendered obvious by OZAWA or any proper combination of OZAWA and LAFLAMME et al.

OZAWA is directed to a speech coding apparatus having amplitude information that corresponds with position information. In particular, OZAWA relates to a speech coding apparatus by which good sound quality is obtained even when the bit rate is low. The speech coding apparatus includes an excitation quantization circuit that quantizes an excitation signal utilizing a plurality of pulses. The position of at least one of the pulses is represented by a number of bits determined in advance and the amplitude of the pulse is determined in advance depending upon the position of the pulse. However, OZAWA does not disclose the excitation vector generator recited in Applicants claim 1-21.

As noted above, Applicants invention includes a convolution system as recited in, e.g., claim 1. The convolution system recited in Applicants claims is rather different than and clearly distinct from the convolution system disclosed by OZAWA. In particular, the convolution system disclosed by OZAWA in column 7, and to which the Examiner directed Applicants attention, operates to generate a synthesized speech by convoluting an excitation vector with a synthesis filter ($H_w(n)$).

In direct contrast, Applicants convolution system provides for modification of an input vector with at least one fixed waveform to transform a waveform of the input vector. Further, the convoluting system of Applicants invention outputs the transformed input vector as an excitation vector to improve a speech quality when a random code vector is decoded with the input vector.

It is respectfully submitted that a convolution system as recited, e.g., in Applicants claim 1, is not taught, disclosed nor rendered obvious by OZAWA. As noted above, the convolution system described in OZAWA and exemplified by equations 9 and 11 of column 7 is clearly distinct from the convolution system recited in Applicants claims. In regard to the equations set forth in column 7 of OZAWA, the excitation vector is represented by the term $v(n-T)$ while in equation 11 the excitation vector is defined by the term $\beta_v(n-T)$. Thus, the equations of OZAWA column 7 do not generate an excitation vector but rather utilize an excitation vector therein. In OZAWA, the convolution calculation of equation 9 is utilized in order to specify a value for the delay T that minimizes a distortion of equation 8 therein.

Thus, the convolutions used in the distortion generating section of OZAWA differs from Applicants convolution calculation that is performed to generate an excitation vector in which a fixed waveform storage system is provided for the convolution calculation.

Accordingly, Applicants respectfully traverse the Examiner's rejection of the claims as anticipated or rendered obvious by OZAWA, even if considered in combination with the

P20687.A05

LAFLAMME et al. publication cited by the Examiner. In this regard, Applicants note that the above-noted deficiencies of OZAWA are not supplied by the disclosure of LAFLAMME et al. and the Examiner has relied upon LAFLAMME et al. merely for teaching of sparse algebraic codebooks to be used in CELP coders.

Accordingly, Applicants respectfully submit that the claims in the present application are clearly patentable and respectfully request an action to such effect in due course.

SUMMARY AND CONCLUSION

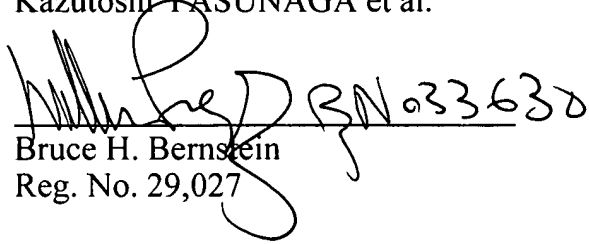
Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so. Applicants have traversed the Examiner's obviousness type double patenting rejections and have shown them to be inapplicable to the present application. Applicants have also traversed the Examiner's the rejection of claims under 35 U.S.C. § 102(b) and § 103(a).

Applicants have discussed the disclosure of the references and have pointed out the shortcomings and deficiencies thereof. Applicants have further discussed the combinations of features defining Applicants invention and have pointed out how these features are not taught, disclosed or rendered obvious by the references relied upon by the Examiner. Accordingly, Applicants have provided a clear evidentiary basis supporting the patentability of all the claims in the present application and respectfully request an indication to such effect in due course.

Should the Examiner have any questions or comments regarding this Response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

February 26, 2004
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191

Respectfully submitted,
Kazutoshi YASUNAGA et al.


Bruce H. Bernstein
Reg. No. 29,027